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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,863	12/03/2004	Martin Willem Klomp	PTT-199(402865US)	8551
7265	7590	09/28/2006	EXAMINER	
MICHAELSON & ASSOCIATES				NGUYEN, DAVID Q
P.O. BOX 8489				ART UNIT
RED BANK, NJ 07701				PAPER NUMBER
				2617

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/516,863	KLOMP ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David Q. Nguyen	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 24 August 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 27-33,35,37-47 and 51-58 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 27-33,35,37-47,51,53,55 and 57 is/are rejected.  
 7) Claim(s) 52,54,56 and 58 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 08/24/06 have been fully considered but they are not persuasive.

Applicant argues: "the Johnson et al patent contains absolutely no mention of the height to which the antenna system is to be mounted" and "There is absolutely no reference at all in this passage nor does any seem to be implied—contrary to the Examiner's apparent belief, as to the height, above-ground, to which the entire antenna ring 2 is to be mounted on mast 6".

Examiner respectfully disagrees. In col 4, lines 1-5, radio tower, col 2, lines 43-49, it is shown that the antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is greater than or equal to 50m. Therefore, Johnson et al in view of Tsui et al disclose all limitations as claimed in all independent claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 27-33,35,37-51,53,55 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (US 6088002) in view of Tsui et al (US 2003/0003959).

Regarding claims 51,53,55 and 57, Johnson et al. disclose a base station, an apparatus for use in a mobile network comprising a telecommunications radio system for mobile

communication services (see col. 3, lines 1-5, radio, antenna system) comprising a first base station (see col. 1, lines 30-33, base station; col. 4, lines 1-5, radio tower) having a plurality of antennas and located at a site (col. 4, lines 5-10, dipole antenna elements), wherein: the site comprises a structure with a height of at least 50m from erection ground (col. 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied and made greater than or equal to 50 m); the base station is located on the structure at a height of at least 50m from erection ground (col. 4, lines 1-5, radio tower, col. 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is greater than or equal to 50 m); and the plurality of antennas having: a first set of the antennas arranged in a first ring situated in a first plane orthogonal to and concentric with a longitudinal axis of the structure (see col. 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction); and a second set of the antennas arranged in a second ring situated in a second plane orthogonal to and concentric with the longitudinal axis of the structure (see col. 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction), wherein the antennas in the second set are different from and greater in number than the antennas in the first set, such that the second ring of antennas provides denser sectorization than that provided by the first set of antennas (see col. 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction;

col. 2, lines 50-54, modifiable variants, thus antennas can be added if needed). Johnson et al. do not disclose the base station covering an area subdivided into a multitude of sectors by the antennas. However, Tsui et al show an pattern partitioned into sectors (page 2, par. 28). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johson et al to show a telecommunications radio system for mobile communication services comprising a first base station having a plurality of antennas and located at a site, the base station covering an area subdivided into a multitude of sectors by the antennas, wherein: the site comprises a structure with a height of at least 50 m from erection ground; and at least two of the antennas are arranged in a first ring situated in a first plane orthogonal to and concentric with a longitudinal axis of the site, as taught by Tsui et al, the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity.

Regarding claim 27, Johnson et al. also disclose wherein the height of the height of the structure is in the range of 90m to 320m from the erection ground and the base station is located on the structure at a height in the range of 90m to 320m from the erection ground (see col. 4, lines 1-5, radio tower, col. 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is in the 90m to 320 m range).

Regarding claim 28, Johnson et al. do not disclose each sector is served by a separate antenna. The examiner maintains that the concept that each sector is served by a separate antenna was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show a phased array multiple antenna sectors (page 2, paragraph 28; phased array entails sectors respective to antennas).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show each sector served by a separate antenna, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 29, Johnson et al. disclose wherein at least one of the antennas is a phase-controlled antenna (col 3, lines 66-67, phased array antenna).

Regarding claim 30, Johnson et al. disclose do not disclose that the multitude of sectors comprises six sectors. The examiner maintains that the concept that the multitude of sectors comprises six sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 24 sectors (page 2, paragraph 28, 24 sectors comprise six sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the multitude of sectors comprises six sectors, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 31, Johnson et al. disclose do not do not disclose that the multitude of sectors comprises 12 sectors. The examiner maintains that the concept that the multitude of sectors comprises 12 sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al show 24 sectors (page 2, paragraph 28, 24 sectors comprise 12 sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al to show the telecommunications radio system wherein the multitude of sectors comprises 12 sectors, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 32, Johnson et al. do not disclose that the multitude of sectors comprises 24 sectors. The examiner maintains that the concept that the multitude of sectors comprises 24 sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 24 sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show telecommunications radio system wherein the multitude of sectors comprises 24 sectors, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 33, Johnson et al. do not disclose the multitude of sectors comprises 48 sectors. The examiner maintains that the concept that the multitude of sectors comprises 48 sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al show 72 beams over 360 degrees of azimuthal coverage (page 3, paragraph 34, 72 beams form 72 sectors, 72 sectors comprise 48 sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the

multitude of sectors comprises 48 sectors, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 35, Johnson et al disclose the second plane (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction).

Regarding claim 37, Johnson et al disclose wherein at least one of the antennas on the second ring has a horizontal angular range that is smaller than a horizontal angular range of at least one of the antennas on the first ring (col 2, lines 60-67, requirements may vary with different capacity or range or beam tilts; col 4, lines 32-35, different patterns are provided for antenna system to provide different angles at the connection, thus angles can be varied to have horizontal angular range of the antennas on the second ring smaller than that on the first ring).

Regarding claim 38, Johnson et al disclose wherein at least one of the antennas on the first ring has a vertical aperture angle in the range of 8 to 12 degrees (col. 2, lines 60-67, requirements may vary with different capacity or range or beam tilts, col. 4, lines 32-35, different patterns are provided for antenna system to provide different angles at the connection, thus angles can be varied).

Regarding claim 39, Johnson et al disclose wherein at least one antenna on the second ring has a vertical aperture angle in the range of 3 to 6.5 degrees (col 2, lines 60-67, requirements may vary with different capacity or range or beam tilts; col 4, lines 32-35, different

patterns are provided for antenna system to provide different angles at the connection, thus angles can be varied).

Regarding claim 40, Johnson et al disclose varying requirements with different capacity or range or beam tilts (col 2, lines 60-67) and that the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction (col. 3, lines 10-12).

Johnson et al. do not disclose that the area is subdivided into 24 sectors by the antennas on the first concentric ring and 72 sectors by antennas on the second concentric ring. The examiner maintains that the concept of the area being subdivided into 24 sectors by antennas on the first concentric ring and 72 sectors by antennas on the second concentric ring was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 24 sectors (page 2, paragraph 28) and 72 beams over 360 degrees of azimuthal coverage (page 3, paragraph 34, 72 beams form 72 sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the area is subdivided into 24 sectors by antennas on the first ring and 72 sectors by antennas on the second ring, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 41, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and antennas with modifiable variants (col 2, lines 35-40; col 2, lines 50-55). Johnson et al. do not disclose the shape and/or size of one

or more sectors can be changed by switching on or off one or more antennas. The examiner maintains that the concept that the shape and/or size of one or more sectors can be changed by switching on or off one or more antennas was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show one or more antennas (page 2, paragraph 20) and an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the shape and/or size of one or more sectors can be changed by switching on or off one or more antennas (antennas are modifiable, sectors depend on antennas), as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 42, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and antennas with modifiable variants (col 2, lines 35-40; col 2, lines 50-55). Johnson et al. do not disclose that the shape and/or size of one or more sectors can be changed by changing the horizontal angular range of one or more antennas. The examiner maintains that the concept that the shape and/or size of one or more sectors can be changed by changing the horizontal angular range of one or more antennas was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show one or more antennas (page 2, paragraph 20) and an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system in

which the shape and/or size of one or more sectors can be changed by changing the horizontal angular range of one or more antennas (antennas are modifiable, sectors depend on antennas), as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 43, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and antennas with modifiable variants (col 2, lines 35-40; col 2, lines 50-55). Johnson et al. do not disclose that the shape and/or size of one or more sectors can be changed by changing the vertical aperture angle of one or more antennas.

The examiner maintains that the concept that the shape and/or size of one or more sectors can be changed by changing the vertical aperture angle of one or more antennas was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show one or more antennas (page 2, paragraph 20) and an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system in which the shape and/or size of one or more sectors can be changed by changing the vertical aperture angle of one or more antennas (antennas are modifiable, sectors depend on antennas), as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 44, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 wherein at least one of the antennas, not in either said first or second sets, is arranged in a third plane orthogonal to the longitudinal axis of the site so as to cover an area in a proximity zone of the structure, the third plane being located below a height of 50m from the erection ground (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction; col 4, lines 1-5, radio tower, col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the third orthogonal plane is located below a height of 50m).

Regarding claim 45, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and modifiable variations based on traffic demand (col 2, lines 50-55) and different requirements like capacity (col 2, lines 63-66). Johnston et al. do not disclose that a total number of sectors needed to cover the area is calculated as a function of the size of each sector and the required field strength in said each sector. The examiner maintains that the concept that a total number of sectors needed to cover the area is calculated as a function of the size of each of said sectors and a required field strength in each said sector was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show antennas (page 2, paragraph 20); an antenna pattern partitioned into sectors and the relation between sectors and frequency (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system in which the total number of sectors needed to cover the area is calculated as a function of the size of each of said sectors and the required field strength in said each sector as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Regarding claim 46, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 in which all of the antennas operate at one frequency (col 3, lines 1-4, coherent signal access).

Regarding claim 47, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 46 wherein a second base station operating at a different frequency, from said one frequency, is situated within the area (col 3, lines 50-60, traffic demand changes, new antennas).

#### ***Allowable Subject Matter***

3. Claims 52,54,56 and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 52,54,56 and 58, Johnson et al. in view of Tsui et al fail to disclose wherein the plurality of antennas results in a substantially uniform power flow density of

approximately -21 dBm/square meter, in the area and at approximately ground level for an approximate i0 W transmitting power per sector, as specified in the claims.

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Q. Nguyen whose telephone number is 571-272-7844. The examiner can normally be reached on 8:30AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOSEPH H. FEILD can be reached on (571)272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DPN

David Q Nguyen  
Examiner  
Art Unit 2617